The Role of Triple Helix in E-Government in South Sulawesi

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ABSTRACT
This study aims to analyze the role of the Triple Helix in website-based E-government in South Sulawesi Province. Moreover, to find out how far the village government is using the village website. The focus of this research is the role of the triple helix in realizing E-government. Data collection techniques use video interviews, short news stories from trusted sources, and other media. The data analysis technique used qualitative data with the analytical tool using NVIVO. The research result shows that the role of government in realizing E-government based on village websites in South Sulawesi Province is the largest, compared to the two elements or Triple Helix indicators. The utilization of village websites in South Sulawesi Province is very minimal, and this is evidenced by the number of registered village website users: only 70 villages out of a total of 2250 villages, as well as villages that can use websites up to 100% only 16 villages. The strategy of implementing the triple helix in the use of village websites is that the government, academics, and industry must work together in realizing smart villages starting from the procurement of facilities and infrastructure by industry, assistance by academics, and evaluation from the government.

Keywords: *E-government, Government, Industry.*

1. INTRODUCTION

The Indonesian government has issued Presidential Instruction No. 3 of 2003 concerning the National Policy and Strategy for the development of E-government, where the policy is the legal umbrella for all detailed technical policies in the field of E-government. E-government development is an effort to develop government administration based on (using) electronics to improve the quality of public services effectively and efficiently.[1]. The development of information and communication technology has offered solutions to improve the performance of public services that are more based on good governance. The readiness of human resources, regulations, budget funds, facilities, and infrastructure is an absolute thing that must be provided in the implementation of E-government[2].

In its development, most of the existing E-government application development stages are still focused on providing websites and information services only. So if a local government already has a website, it assumes that it has implemented an E-government application. Whereas the concept of E-government displays government information through website services and the transformation of the relationship between the government and all stakeholders who originally used conventional media to use information technology, E-government was built to facilitate the dissemination of information from the government to the public. The public can access government information from anywhere and anytime[3].

Essentially, the use of the website is mandatory for every village; this has been regulated in law number 6 of 2014 concerning the Village Development Information System and Rural Area Development. However, from the results of observations made by researchers, it turns out that the villages that use the website are very minimal. There is no need to talk about villages throughout Indonesia, just within the scope of South Sulawesi Province, the number of villages in South Sulawesi is 2255 villages spread out from 24 regencies. However, the use of village websites is only carried out by a few villages. Moreover, this website is not directly connected to the local government website, so it is not easy to find a village with a website. It should be a concern of the government because, as we all know, the village is the government's spearhead. So if the governance from below is not optimal, then what about the ranks above it?

2. METHODOLOGY

This research is located in South Sulawesi, which focuses on the use of website-based E-government in villages. The reason for choosing this location is that the total number of villages in South Sulawesi is 2255. However, 27 villages use the website in their village administration. So it is interesting for researchers to conduct research related to village websites. The approach used in this research is qualitative. The scope of this study is the role of the triple helix in the procurement of village websites. Of the three elements in the triple helix, the researcher wants to know which element has the most important role in sourcing village websites. collect data using monographs, and this study uses a qualitative data analysis software (QDAS) approach Nvivo[4]. [5]. The use of Nvivo in a qualitative approach aims to explain the triple Helix problem in website-based E-government with a data coding model. The data in the study were obtained through the online media of the South Sulawesi Province by selecting news about website-based E-government. The data that has been obtained is analyzed using Nvivo through several stages such as data import, multi-level coding, data display, and data visualization.[4].

3. BASIC THEORY

3.1. Triple Helix

Etzkowitz and Leydesdorff originally popularized the Triple Helix theory as an innovation-based method of policy development[6]. At present, the Triple Helix concept has been widely used in developed countries to develop science and technology through university-industry-government collaboration to solve development problems.[7]. The Triple Helix pattern has been widely applied in the United States, European countries, India, Japan, and China [8] and has brought rapid and continuous progress in building capacity in science and technology applied in industry and governance.

When studied more deeply, the development of this Triple Helix pattern in developed countries is based on three factors, i.e.:

1. The university as a repository of science and technology has human resources capable of producing innovations in various fields that can be applied in the industrial world,
2. The government strongly encourages universities through research funding assistance and other facilities to produce quality works and regulates the protection and use of copyright.
3. The industry provides support to universities both in research and development activities and the sustainable use of research results.

By looking at this fact, universities are not ivory towers amid development but must improve themselves as an integral part of the development process.[9]. As stated[10] in his scientific work The Triple Helix Model of Innovation and Action: “university is not only critical to the commercial transformation of knowledge but also to create space for knowledge, assembling and innovation.”

Therefore, universities must improve themselves to develop the capacity of science and technology [11] and create university-led development strategies.

3.2. Electronic Government

E-government is a process of utilizing information and communication technology (ICT) as a new instrument in providing public services more effectively and efficiently. [12]. In E-government, two things cannot be separated: first is the use of ICT technology (one of which is the internet) as a tool, and second is the purpose of its use so that government runs more effectively and efficiently.[13]. However, the E-government does not eliminate manual services or replace all government communication methods with the public using electronic media[14].

Paying attention to the implementation of E-government in Indonesia over the last five years, various E-government programs run by the government in departments and institutions have encountered obstacles that are not small.[15]. Progress has indeed been achieved, but when compared to the initial plans and targets, especially regional progress, our E-government's development is still lagging and losing fast. Although it has many advantages, the implementation of E-government cannot be separated from various problems. When government organizations use information technology, it is often not accompanied by increasing their productivity, including quality and services to the wider community.[16].

E-government has become a multidisciplinary research field. Apart from computer science, there are several other disciplines in E-government such as public administration, management, politics, socio-culture, etc. Although the theoretical foundations of E-government are still being developed, E-government has qualified as a new scientific discipline (Assar, 2011).[16]. Heeks (2006) states that E-government is an information system, which can be described as a socio-technical system because it combines social and technological aspects (Avison, 2003).

4. RESULT AND DISCUSSION

4.1. Research Result

The use of village websites has been regulated in Law Number 6 of 2014 concerning Every Village Must Have a website/information network. Especially for villages in South Sulawesi, totaling 2255 villages spread from 24 regencies. The following are village data that have used the website:

Table 1. Website Usage

No	districts	Village	Website Address
1	Bantaeng District	Balumbung	http://balumbung.desa.id/index.php/first
2		Labbo	http://www.labbo.desa.id/first/index/4
3	Enrekang District	Cemba	https://cemba.ums.pw/
4		Pattondon Salu	https://patondonsalu.id/
5	Luwu District	South Komba	https://kombaselatan.desa.id/first
6	Sidenreng Rappang Regency	Aka-Akae	https://siberas.akaakae.id/
7		Sipodecengng	https://sipodecengberkah.id/
8		Lasiwala	https://lasiwala.id/
9		Carawali	https://carawali.id/
10		Bulo Wattang	https://bulowattang.ums.pw/
11		Bulo	https://bulo.zhl.pw/
12		Cipotakari	https://cipotakari.ums.pw/
13		East Timor	https://timorengpanua.ums.pw/
14		New Build	https://binabaru.ums.pw/
15		When Riase	https://bilariase.ums.pw/
16		Lagading	https://lagading.ums.pw/
17		Kanie	https://kanie.ums.pw/
18		Sereang	https://sereang.ums.pw/
19		Mario	https://mario.ums.pw/
20		Stone	https://batu.ums.pw/
21	Soppeng Kabupaten	Tinco	http://tinco.desa.id/
22		Timusu	http://timusu.desa.id/
23		Abbanuange	http://abbanuange.desa.id/
24		Barae	http://barae.desa.id/
25		Goods	http://barang.desa.id/
26		together	http://baringeng.desa.id/
27		Belo	http://belo-soppeng.desa.id/
28		Bulue	http://bulue.desa.id/
29		citta	http://citta.desa.id/
30		Conko	http://conko.desa.id/
31		Donri-Donri	http://donridonri.desa.id/?
32		Enrekeng	http://enrekeng.desa.id/
33		ganra	http://ganra.desa.id/
34		Gattareng	http://gattareng.desa.id/
35		Gattareng Toa	http://gattarengtoa.desa.id/
36		Goarie	http://goarie.desa.id/
37		Jampu	http://jampu.desa.id/
38		Kampiri	http://kampiri.desa.id/
39		Kebo	http://kebo.desa.id/
40		Kessing	http://kessing.desa.id/
41		Labae	http://labae.desa.id/
42		Labokong	http://labokong.desa.id/
43		Lalabata Riaja	http://lalabatariaja.desa.id/
44		larynx	http://laringgi.desa.id/
45		Leworeng	http://leworeng.desa.id/
46		Lompulle	http://lompulle.desa.id/
47		Maccile	http://maccile.desa.id/
48		Marioriaja	http://marioriaja.desa.id/
49		Mariorilau	http://mariorilau.desa.id/
50		Marioritengnga	http://marioritengnga.desa.id/
51		each	http://masing.desa.id/
52		Mattabulu	http://mattabulu.desa.id/
53		Palangiseng	http://palangiseng.desa.id/
54		Panincong	http://panincong.desa.id/
55		parenting	http://parenring.desa.id/
56		paroto	http://paroto.desa.id/
57		Patampanua	http://patampanua.desa.id/
58		Pattojo	http://pattojo.desa.id/
59		Pesse	http://pesse.desa.id/
60		Piping	http://pising.desa.id/
61		Rompegading	http://rompegading.desa.id/
62		Often	http://often.desa.id/
63		Soga	http://soga.desa.id/
64		Tellulimpoe	http://tellumpoe.desa.id/
65		Tetewatu	http://tetewatu.desa.id/
66		tottong	http://tottong.desa.id/
67		Umpungeng	http://umpungeng.desa.id/
68		stone	http://watu.desa.id/
69		Watu Toa	http://watutua.desa.id/
70	Wajo District	Tosora	https://desatosora.co.id/

Source: Village Website

The data shows that six districts coordinate their villages to use the website, although not all villages in the district use the website; for example, Luwu Regency out of 207 villages, only one village uses the website, Wajo Regency out of 142 villages, only one village uses the website. Meanwhile, in Enrekang Regency, out of 112 villages, two villages have two websites, Bantaeng Regency of 46 villages that use the website only two villages, Then in Sidenreng Rappang Regency of 68 which use the website totaling 15 villages. Moreover, the last one is Soppeng Regency, where all villages have websites. It means that of the total number of villages in South Sulawesi, as many as 2255 villages, only 3.2% have websites.

The village website for information management is generally used as a medium of public information accessed online. The village government can use the

website as a medium of information, including village profiles, public services, and village potential. The following is the village data of website users that have this feature;

Table 2. Website Users with Features

No	districts	Village	Public Service	Village Potential	Village Profile	%
1	Bantaeng District	Balumbung	0	1	1	66.6%
2		Labbo	1	1	0	66.6%
3	Enrekang District	Cemba	0	0	0	0%
4		Pattondon Salu	1	1	1	100%
5	Luwu District	South Komba	1	0	0	33.3%
6	Sidenreng Rappang Regency	Aka-Akae	0	0	0	0%
7		Sipodeceng	0	0	0	0%
8		Lasiwala	1	0	0	33.3%
9		Carawali	0	1	1	66.6%
10		Bulo Wattang	1	1	1	100%
11		Bulo	1	1	0	66.6%
12		Cipotakari	1	1	1	100%
13		East Timor	1	0	1	66.6%
14		New Build	1	1	1	100%
15		When Riase	1	1	1	100%
16		Lagading	1	0	1	66.6%
17		Kanie	1	1	1	100%
18		Sereang	1	1	1	100%
19		Mario	1	1	1	100%
20		Stone	1	1	1	100%
21	Soppeng Regency	Tinco	1	0	0	33.3%
22		Timusu	1	0	1	66.6%
23		Abbanuange	1	0	0	33.3%
24		Barae	1	0	0	33.3%
25		Goods	1	0	1	66.6%
26		together	1	0	0	33.3%
27		Belo	1	0	0	33.3%
28		Bulue	1	1	1	100%
29		citta	1	0	0	33.3%
30		Conko	1	0	0	33.3%
31		Donri-Donri	1	0	0	33.3%
32		Enrekeng	1	0	1	66.6%
33		ganra	1	0	0	33.3%
34		Gattareng	1	0	0	33.3%
35		Gattareng Toa	1	0	0	33.3%
36		Goarie	1	0	0	33.3%
37		Jampu	1	0	1	66.6%
38		Kampiri	1	0	0	0%
39		Kebo	1	0	0	0%
40		Kessing	1	0	1	66.6%
41		Labae	1	0	0	0%
42		Labokong	1	1	1	100%
43		Lalabata Riaja	1	0	0	33.3%
44		larynx	1	0	0	33.3%
45		Leworeng	1	1	0	66.6%
46		Lompulle	1	1	1	100%
47		Maccile	1	0	0	33.3%
48		Marioriaja	1	0	0	33.3%
49		Mariorilau	1	0	0	33.3%
50		Mariorite ngnga	1	0	0	33.3%
51		each	1	0	0	33.3%
52		Mattabulu	1	0	0	33.3%
53		Palangiseng	1	1	1	100%
54		Panincong	1	0	0	33.3%
55		parenting	1	0	1	66.6%
56		paroto	1	0	0	33.3%
57		Patampanua	1	0	0	33.3%
58		Pattojo	1	0	0	33.3%
59		Pesse	1	0	0	33.3%
60		Piping	1	1	1	100%
61		Rompegading	1	0	0	33.3%
62		Often	1	0	0	33.3%
63		Soga	1	1	1	100
64		Tellulimpoe	1	1	1	100
65		Tetewatu	1	0	1	66.6%
66		tottong	1	0	1	66.6%
67		Umpungeng	1	0	0	33.3%
68		stone	1	0	0	33.3%
69		Watu Toa	1	0	1	66.6%
70	Wajo District	Tosora	1	0	1	66.6

Source: Village Website

The data shows that not all villages that have websites make good use of the website. Of the three indicators such as public service, village potential, and village profiles that at least must be available on a website, there are still village websites that do not use them as seen in Cemba Village, Enrekang Regency, Aka-akae Village and Sipodeceng Village, Sidenreng Rappang Regency, and Kampiri Village. Kebo Village and Labae Village, Soppeng Regency, which have a score of 0%, meaning that these six villages were only able to reach the stage of providing a website, but none of the indicators were available on their village website.

In addition, 31 villages have a score of 33.3%, namely 29 villages from Soppeng Regency, one village from Sidenreng Rappang Regency, and one village from Luwu Regency, meaning that of the three website feature indicators, only one indicator has points. These villages only provide public services on their websites, such as social media or email, and the contacts they provide on the website, while village potentials and village profiles are not listed on their website.

The data calculation technique in the table is that if the desired information is available, it will be given a score of 1, and if the desired information is not available, it is given a score of 0. In 2 villages in Bantaeng Regency, it has a score of 2 with a value of 66.6%, and this happens because The indicators available on the website only display two items, namely the potential of the village and the village profile, while the public service website for this village does not provide it. The same thing happened to several villages in various regencies, such as four villages in Sidenreng Rappang Regency, ten villages in Soppeng Regency, and one village in Wajo Regency. Although each village provides different features, the score for each village remains the same, namely two scores with a value of 66.6%.

Meanwhile, from 70 villages in South Sulawesi that have websites, there are 16 villages from 3 regencies, getting a score of 3 with 100%, namely one village from Enrekang Regency, eight villages from Sidenreng Rappang Regency, and seven villages from Soppeng Regency. It means that these sixteen village websites meet all the criteria or indicators of the features that the researcher has determined: public services are available, village potential is available, and village profiles are also available.

Triple Helix is a liaison between government, academia, and business or industry. From the results of the NVivo analysis, using the Hierarchy Chart related to these three elements in E-government, the results are as follows:

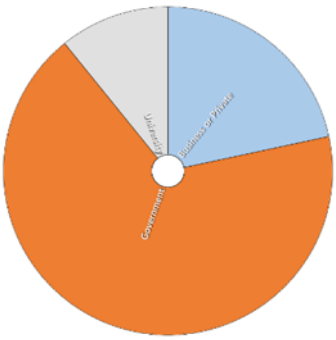

Figure 1 NVivo Hierarchy Chart

The data used for coding is data taken using nano graphic techniques, namely, collecting data on the official government website in South Sulawesi and several trusted news sites in South Sulawesi that study E-government. Then do the coding by connecting the elements of the triple helix, namely Government, Academia, and Industry. The following are the details of the data coding results.

Table 3. Reference summary

Codes	Number of coding references	Aggregate number of coding references	Number of items coded	Aggregate number of items coded
Nodes\\Business or Private	14	14	10	10
Nodes\\Government	30	30	27	27
Nodes\\University	10	10	5	5
amount	54		42	

The table above shows that the amount of data obtained by researchers is 42 items, dividing three nodes, namely Business or Private, Government and University. The business item indicators that have been successfully coded are 10 data with coding references as much as 14. For the Government indicators, the coded results are 27 data with 30 coding references. Meanwhile, the University or Academic indicators' coded results are 5 data points, with ten coding references. It is shown that the government has a very high role in the success of E-government.

4.2. Discussion

Various benchmarks show some of the government services available online and illustrate that there are currently no effective public services in many countries that do not partially or fully support the web.[17]. It has been known that the village is the spearhead of a government. Therefore, it has become an obligation for the government to pay attention to the management of the village's services, as with the provision of websites in every village.

There are still many villages that do not have a website. Out of 2255 villages in South Sulawesi, only 3% use the website, 70 villages. Of the 70 villages that use the website, only the village in Soppeng Regency has a website sourced from the government, where the government provides the procurement of the website. Meanwhile, for Enrekang Regency and Sidenreng Rappang Regency websites, the website provider is the Muhammadiyah University of Sidenreng Rapping. Meanwhile, for other villages, they are independent in providing their website.

The government should be the main pioneer in providing websites in every village. Websites in local governments should be interrelated or connected to websites in the village. With the village website, it is expected to be able to improve online services. The public can find out the potential of the village and the existing profile because the website will display more detailed information.[18]so that the expected smart village can be realized. However, the lack of villages using the website indicates a lack of regional attention to service quality in the village.

Research results [19]said that a website would function with adequate human resources, facilities and infrastructure, and local government support. One of the biggest obstacles in providing a website is the availability of the network, while at some points, the village location does not have a good network, making it very difficult to access the network.

For example, one example of a village that has a website but does not meet the minimum requirements for features in terms of public services, village potential, and village profile is Cemba Village, Enrekang Regency. Network access in this village is very difficult to reach because the village's location is not strategic. It happened to several other villages that did not have the availability of information, so that they got a score of 0.

This study tries to find the relationship or role of the triple helix in website-based E-government. Here are the results of the word cloud obtained from several references that have been collected by researchers, which are then processed in NVivo:

Figure 2 Word Cloud triple Helix

The figure shows that the government's role in realizing E-government is very large. It is in line with the results of data analysis obtained from news references published on the official news media sites. In terms of the use of online media or websites in government, this is not new to the government. Because all districts have local websites, the problem is that local governments do not pay attention to village governance in terms of using the website. Because of the 70 villages with websites, only 16 villages can use the website up to 100%.

If the website is functional and used properly, this can be a tool to show the village's potential to help promote the village, increase village income, and services can run easily and transparently.

5. CONCLUSION

The results of data analysis processed through Nvivo show that the government's role in realizing village website-based E-government in South Sulawesi Province is the largest, compared to the two elements or indicators of the Triple Helix.

The utilization of village websites in South Sulawesi Province is very minimal; this is evidenced by the number of registered village website users, only 70 villages out of 2250 villages. Moreover, only 16 villages can use the website up to 100%.

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